USMC H-1 Upgrades

This program combines upgrades of two USMC H-1 aircraft: the AH-1W Cobra attack helicopter and the UH-1N light utility helicopter. The common elements of the two will be identical twin engines, drive trains, a new four-bladed rotor, tail sections, and integrated digital cockpits. In addition, the AH-1 attack helicopter will gain an upgraded targeting system, and the UH-1 will have an upgraded night navigation system. The upgrade will extend the lives of the two H-1 models well into the 21st century.

The upgrade of the AH-1W is referred to as the AH-1Z, and the upgrade of the UH-1N is referred to as the UH-1Y. Collectively, the AH-1Z/UH-1Y effort constitutes the USMC H-1 Upgrades Program.

TEST & EVALUATION ACTIVITY

Test planning was the major Test and Evaluation (T&E) activity this year. The approved Test and Evaluation Master Plan calls for the T&E program to be conducted in two phases: integrated contractor/government developmental testing called Integrated Test (IT) and Operational Testing. Each aircraft model (AH-1Z and UH-1Y) will participate in Operational Test and Evaluation (OT&E) and Live Fire Test and Evaluation (LFT&E).

To provide feedback early in development, the operational testers have formed a team to monitor IT and to provide Marine maintainers to assist with aircraft maintenance and validate maintenance documents and procedures. Concurrent with IT, the operational testers will conduct two operational assessments that will provide data to support two Low-Rate Initial Production decisions. OT&E for both aircraft will be conducted prior to the full-rate production decision in FY06.

Live Fire testing continued in accordance with the approved LFT&E strategy. During this past year, three component ballistic qualification tests series were completed for the tail rotor blades, main rotor cuff, and main rotor blade. Following component testing, Live Fire Testing will progress to system-level of the UH-1Y and full-up, system-level Live Fire Testing of the AH-1Z. These tests are intended to show platform survivability and performance of vulnerability reduction features that can only be adequately demonstrated with higher-fidelity targets.

TEST & EVALUATION ASSESSMENT

An Integrated Test Team consisting of government and contractor flight test engineers and pilots is conducting the IT program. The contractor demonstrates safety of flight of the Engineering and Manufacturing Development aircraft prior to the participation of government personnel in flight testing. Funding constraints continue to threaten the overall scope of testing. Recent program upheaval caused by increased costs and poor performance by the avionics integration subcontractor triggered an ongoing review of the program baseline, resulting in a total program restructure this year. The program Test Integration Working Group (TIWG), in which DOT&E participates, is actively seeking to develop an integrated T&E program that should resolve all critical technical and operational issues before production.

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An LFT&E Integrated Product Team (IPT), which includes representatives from DOT&E, the program management activity, the Naval Air Systems Command, and the prime contractor, has been formally established under the TIWG. This group has implemented changes in the component test procedure to ensure that an adequate get-home capability is demonstrated following hits to critical components. The IPT is identifying opportunities for a battle damage repair team to participate in the component-level tests as well as the full-up and full-up, system-level live fire testing.

A total of 12 of the 18 component-level ballistic qualification test series have been completed. So far, these tests have demonstrated that the components of the UH-1Y and AH-1Z will retain the same degree of damage tolerance found in their predecessors. The test results have been used to improve survivability. For instance, the fire protection for the dry bays adjacent to the fuel tanks has been changed to prevent fires encountered during testing.